

CLAIMS

What is claimed is:

1. A method for representing data associable with intervals, the method comprising:
5 associating a frame with each of a number of intervals in a period;
identifying a first data characteristic to be identified for data associable with the
number of intervals in the period;
mining the body of data to identify a number of first significant intervals, the first
significant intervals being intervals for which the first data characteristic is
10 manifested in data associated with each of the first significant intervals; and
presenting in the frame associated with each of the first significant intervals a first
representation of the data indicative of the first data characteristic.
2. The method of Claim 1, wherein each interval includes at least a portion of a day.
3. The method of Claim 2, wherein each interval includes a day and the period
15 includes at least one week such that the frames are presented in a week table having days
listed along a first axis and days of a week listed along a second axis.
4. The method of Claim 2, wherein each interval includes a day and the period
includes at least one month such that the frames are presented in a month table having days
of a week listed along a first axis and at least one week listed along a second axis.
- 20 5. The method of Claim 4, wherein the interval includes a day and the period includes
at least one year such that the frames are presented in a plurality of month tables.
6. The method of Claim 1, wherein the first data characteristic includes a variation
from an expected quantity.
7. The method of Claim 6, wherein the expected quantity includes at least one of an
25 expected number, an expected range, a control limit, and a standard deviation.

8. The method of Claim 6, wherein the variation from the expected quantity includes being one of greater than and less than the expected quantity.

9. The method of Claim 6, wherein the variation includes a sequence of intervals varying from the expected quantity.

5 10. The method of Claim 9, wherein the sequence of variations includes one of a longest series of intervals or a plurality of a number of longer series for which data associated with the intervals varies from the expected quantity.

11. The method of Claim 1, wherein presenting the first representation of the first data characteristic includes:

10 determining a maximum number of points displayable within the frame;
determining a number of points representative of a data quantity associable with
each interval, wherein a proportion of the number of points to the maximum
number of points represents a relative magnitude of the first data quantity; and
contiguously displaying the number of points in the frame for each of the
15 intervals.

12. The method of Claim 11, wherein the data quantity includes a number of occurrences and the first number of points represents a number of occurrences.

13. The method of Claim 11, wherein the data quantity includes at least one measurement and the first number of points represents a magnitude of the measurement.

20 14. The method of Claim 11, wherein a proportion of the number of points to the maximum number of points approximately equals a proportion of the data quantity to a data quantity limit.

15. The method of Claim 11, further comprising approximately equating the data quantity limit to the maximum number of points.

16. The method of Claim 15, further comprising approximately equating the data quantity limit to a maximum of the data quantity for the period.

17. The method of Claim 1, further comprising presenting the first representation of the data associated with each of the first significant intervals in a first format including at least one of a color and a fill pattern, the first format being different from that of the frame and other representations within the frame.

18. The method of Claim 17, wherein the first format is user-selectable.

19. The method of Claim 1, further including:

identifying at least one additional data characteristic to be identified for the data
10 associable with the number of intervals in the period;
mining the body of data to identify a number of additional significant intervals,
the additional significant intervals being intervals for which the at least one
additional data characteristic is manifested in data associated with each of the
additional significant intervals; and
15 presenting in the frame associated with each of the additional significant intervals
an additional representation of the additional data characteristic such that the
additional representation of the additional data characteristic is distinguishable
from the first representation.

20. The method of Claim 1, wherein the data indicative of the first data characteristic
20 includes data representative of a plurality of data sources and the data representative of the
plurality of data sources is presented using a unified representation format.

21. A method for representing data associable with intervals, the method comprising:
associating a frame with each of a number of intervals in a period;
receiving at least one data characteristic from a user for which the user desires the
25 at least one data characteristic be identified in data associable with the number
of intervals in the period;

mining the body of data to identify a number of significant intervals, the significant intervals being intervals for which the at least one data characteristic is manifested in data associated with each of the first significant intervals; and

5 presenting in the frame associated with each of the first significant intervals a first representation of the data such that the first representation is different from that of the frame and other representations within the frame, the representation including:

10 determining a first number of points representative of a first data quantity associable with each interval, wherein a proportion of the first number of points to the maximum number of points represents a relative magnitude of the first data quantity; and
contiguously displaying the first number of points in the frame for each of the intervals.

15 22. The method of Claim 21, wherein each interval includes at least a portion of a day.

23. The method of Claim 22, wherein each interval includes a day and the period includes at least one week such that the frames are presented in a week table having days listed along a first axis and days of a week listed along a second axis.

20 24. The method of Claim 22, wherein each interval includes a day and the period includes at least one month such that the frames are presented in a month table having days of a week listed along a first axis and at least one week listed along a second axis.

25 25. The method of Claim 24, wherein each interval includes a day and the period includes at least one year such that the frames are presented in a plurality of month tables.

26. The method of Claim 21, wherein the first data characteristic includes a variation from an expected quantity.

27. The method of Claim 26, wherein the expected quantity includes at least one of an expected number, an expected range, and a standard deviation.

28. The method of Claim 26, wherein the variation from the expected quantity includes being one of greater than and less than the expected quantity.

5 29. The method of Claim 26, wherein the variation includes a sequence of intervals varying from the expected quantity.

30. The method of Claim 29, wherein the sequence of variations includes one of a longest series of intervals or a plurality of a number of longer series for which data associated with the intervals varies from the expected quantity.

10 31. The method of Claim 21, wherein the data quantity includes a number of occurrences and the first number of points represents a number of occurrences.

32. The method of Claim 21, wherein the data quantity includes at least one measurement and the first number of points represents a magnitude of the measurement.

15 33. The method of Claim 21, wherein a proportion of the first number of points to the maximum number of points approximately equals a proportion of the first data quantity to a first data quantity limit.

34. The method of Claim 21, further comprising approximately equating the first data quantity limit to the maximum number of points.

20 35. The method of Claim 34, further comprising approximately equating the first data quantity limit to a maximum of the first data quantity for the period.

36. The method of Claim 21, wherein the data indicative of the first data characteristic includes data representative of a plurality of data sources and the data representative of the plurality of data sources is presented using a unified representation format.

37. A computer-readable medium for representing data associable with intervals, the computer-readable medium comprising:

a first computer program portion adapted to associate a frame with each of a number of intervals in a period;

5 a second computer program portion adapted to identify a first data characteristic to be identified for data associable with the number of intervals in the period;

a third computer program portion adapted to mine the body of data to identify a number of first significant intervals, the first significant intervals being intervals for which the first data characteristic is manifested in data associated with each of the first significant intervals; and

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a fourth computer program portion adapted to present in the frame associated with each of the first significant intervals a first representation of the data indicative of the first data characteristic.

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38. The computer-readable medium of Claim 37, wherein each interval includes at least a portion of a day.

39. The computer-readable medium of Claim 38, wherein each interval includes a day and the period includes at least one week such that the frames are presented in a week table having days listed along a first axis and days of a week listed along a second axis.

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40. The computer-readable medium of Claim 38, wherein each interval includes a day and the period includes at least one month such that the frames are presented in a month table having days of a week listed along a first axis and at least one week listed along a second axis.

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41. The computer-readable medium of Claim 40, wherein each interval includes a day and the period includes at least one year such that the frames are presented in a plurality of month tables.

42. The computer-readable medium of Claim 37, wherein the first data characteristic includes a variation from an expected quantity.

43. The computer-readable medium of Claim 42, wherein the expected quantity includes at least one of an expected number, an expected range, and a standard deviation.

5 44. The computer-readable medium of Claim 42, wherein the variation from the expected quantity includes being one of greater than and less than the expected quantity.

45. The computer-readable medium of Claim 42, wherein the variation includes a sequence of intervals varying from the expected quantity.

10 46. The computer-readable medium of Claim 45, wherein the sequence of variations includes one of a longest series of intervals or a plurality of a number of longer series for which data associated with the intervals varies from the expected quantity.

47. The computer-readable medium of Claim 37, wherein presenting the first representation of the first data characteristic includes:

- 15 a fifth computer program portion adapted to determine a maximum number of points displayable within the frame;
- a sixth computer program portion adapted to determine a number of points representative of a data quantity associable with each interval, wherein a proportion of the number of points to the maximum number of points represents a relative magnitude of the first data quantity; and
- 20 a seventh computer program portion adapted to contiguously display the number of points in the frame for each of the intervals.

48. The computer-readable medium of Claim 47, wherein the data quantity includes a number of occurrences and the first number of points represents a number of occurrences.

49. The computer-readable medium of Claim 47, wherein the data quantity includes at least one measurement and the first number of points represents a magnitude of the measurement.

50. The computer-readable medium of Claim 49, wherein a proportion of the number of points to the maximum number of points approximately equals a proportion of the data quantity to a data quantity limit.

51. The computer-readable medium of Claim 47, further comprising an eighth computer program portion adapted to approximately equate the data quantity limit to the maximum number of points.

52. The computer-readable medium of Claim 51, further comprising a ninth computer program portion adapted to approximately equate the data quantity limit to a maximum of the data quantity for the period.

53. The computer-readable medium of Claim 37, further comprising a tenth computer program portion adapted to present the first representation of the data associated with each of the first significant intervals in a first format including at least one of a color and a fill pattern, the first format being different from that of the frame and other representations within the frame.

54. The computer-readable medium of Claim 53, wherein the first format is user-selectable.

55. The computer-readable medium of Claim 37, further including:
an eleventh computer program portion adapted to identify at least one additional data characteristic to be identified for the data associable with the number of intervals in the period;
a twelfth computer program portion adapted to mine the body of data to identify a number of additional significant intervals, the additional significant intervals being intervals for which the at least one additional data characteristic is

manifested in data associated with each of the additional significant intervals;
and

a thirteenth computer program portion adapted to present in the frame associated
with each of the additional significant intervals an additional representation of
the additional data characteristic such that the additional representation of the
additional data characteristic is distinguishable from the first representation.

56. The computer-readable medium of Claim 37, wherein the data indicative of the first
data characteristic includes data representative of a plurality of data sources, and further
comprising a fourteenth computer program code portion such that the data representative of
the plurality of data sources is presented using a unified representation format.

57. A computer-readable medium for representing data associable with intervals, the
computer-readable medium comprising:

a first computer program portion adapted to associate a frame with each of a
number of intervals in a period;

a second computer program portion adapted to receive at least one data
characteristic from a user for which the user desires the at least one data
characteristic be identified in data associable with the number of intervals in
the period;

a third computer program portion adapted to mine the body of data to identify a
number of significant intervals, the significant intervals being intervals for
which the at least one data characteristic is manifested in data associated with
each of the first significant intervals; and

a fourth computer program portion adapted to present in the frame associated with
each of the first significant intervals a first representation of the data such that
the first representation is different from that of the frame and other
representations within the frame, the representation including:

a fifth computer program portion adapted to determine a first number of
points representative of a first data quantity associable with each

interval, wherein a proportion of the first number of points to the maximum number of points represents a relative magnitude of the first data quantity; and

a sixth computer program portion adapted to contiguously display the first number of points in the frame for each of the intervals.

58. The computer-readable medium of Claim 57, wherein each interval includes at least a portion of a day.

59. The computer-readable medium of Claim 58, wherein each interval includes a day and the period includes at least one week such that the frames are presented in a week table having days listed along a first axis and days of a week listed along a second axis.

60. The computer-readable medium of Claim 58, wherein each interval includes a day and the period includes at least one month such that the frames are presented in a month table having days of a week listed along a first axis and at least one week listed along a second axis.

61. The computer-readable medium of Claim 60, wherein each interval includes a day and the period includes at least one year such that the frames are presented in a plurality of month tables.

62. The computer-readable medium of Claim 57, wherein the first data characteristic includes a variation from an expected quantity.

63. The computer-readable medium of Claim 62, wherein the expected quantity includes at least one of an expected number, an expected range, and a standard deviation.

64. The computer-readable medium of Claim 62, wherein the variation from the expected quantity includes being one of greater than and less than the expected quantity.

65. The computer-readable medium of Claim 62, wherein the variation includes a sequence of intervals varying from the expected quantity.

66. The computer-readable medium of Claim 65, wherein the sequence of variations includes one of a longest series of intervals or a plurality of a number of longer series for which data associated with the intervals varies from the expected quantity.

67. The computer-readable medium of Claim 57, wherein the data quantity includes a number of occurrences and the first number of points represents a number of occurrences.

68. The computer-readable medium of Claim 57, wherein the data quantity includes at least one measurement and the first number of points represents a magnitude of the measurement.

69. The computer-readable medium of Claim 57, wherein a proportion of the first number of points to the maximum number of points approximately equals a proportion of the first data quantity to a first data quantity limit.

70. The computer-readable medium of Claim 57, further comprising a seventh computer program portion adapted to approximately equate the first data quantity limit to the maximum number of points.

71. The computer-readable medium of Claim 70, further comprising an eighth computer program portion adapted to approximately equate the first data quantity limit to a maximum of the first data quantity for the period.

72. The computer-readable medium of Claim 57, wherein the data indicative of the first data characteristic includes data representative of a plurality of data sources, and further comprising a ninth computer program code portion such that the data representative of the plurality of data sources is presented using a unified representation format.

73. A system for representing data associable with intervals, the system comprising:

a frame presenter configured to associate a frame with each of a number of intervals in a period;
an identifier configured to identify a first data characteristic to be identified for data associable with the number of intervals in the period;
5 a data mining system configured to mine the body of data to identify a number of first significant intervals, the first significant intervals being intervals for which the first data characteristic is manifested in data associated with each of the first significant intervals; and
a display apparatus configured to present in the frame associated with each of the
10 first significant intervals a first representation of the data indicative of the first data characteristic.

74. The system of Claim 73, wherein the first data characteristic includes a variation from an expected quantity.

75. The system of Claim 74, wherein the expected quantity includes at least one of an
15 expected number, an expected range, and a standard deviation.

76. The system of Claim 74, wherein the variation from the expected quantity includes being one of greater than and less than the expected quantity.

77. The system of Claim 74, wherein the variation includes a sequence of intervals varying from the expected quantity.

20 78. The system of Claim 74, wherein the sequence of variations includes one of a longest series of intervals or a plurality of a number of longer series for which data associated with the intervals varies from the expected quantity.

79. The system of Claim 73, wherein the system further includes a representation determiner, the representation determiner being configured to:
25 determine a maximum number of points displayable within the frame;

determine a number of points representative of a data quantity associable with each interval such that a proportion of the number of points to the maximum number of points represents a relative magnitude of the first data quantity; and contiguously display the number of points in the frame for each of the intervals.

5 80. The system of Claim 79, wherein the display apparatus is further configured to present a first number of data points in a first format including at least one of a color and a fill pattern.

81. The system of Claim 80, further comprising a format selector coupled with the display apparatus, the format selector allowing a user to select the first format.

10 82. The system of Claim 73, wherein:
the identifier is further configured to identify a second data characteristic to be identified for data the associable with the number of intervals in the period;
the data mining system is further configured to mine the body of data to identify a number of second significant intervals, the second significant intervals being
15 intervals for which the second data characteristic is manifested in data associated with each of the second significant intervals; and
the display apparatus is configured to present in the frame associated with each of the second significant intervals a second representation of the data indicative of the second data characteristic.

20 83. The system of Claim 73, wherein the data indicative of the first data characteristic includes data representative of a plurality of data sources and the data representative of the plurality of data sources is presented using a unified representation format.

84. A system for representing data associable with intervals, the computer-readable medium comprising:

25 a frame presenter configured to associate a frame with each of a number of intervals in a period;

an identifier configured to identify a first data characteristic to be identified for data associable with the number of intervals in the period;

a data mining system configured to mine the body of data to identify a number of first significant intervals, the first significant intervals being intervals for which the first data characteristic is manifested in data associated with each of the first significant intervals;

a representation determiner configured to:

determine a maximum number of points displayable within the frame;

determine a number of points representative of a data quantity associable with each interval such that a proportion of the number of points to the maximum number of points represents a relative magnitude of the first data quantity; and

contiguously display the number of points in the frame for each of the intervals.

and

a display apparatus configured to present in the frame associated with each of the first significant intervals a first representation of the data indicative of the first data characteristic, the display apparatus including

85. The system of Claim 84, wherein the first data characteristic includes a variation from an expected quantity.

86. The system of Claim 85, wherein the expected quantity includes at least one of an expected number, an expected range, a control limit, and a standard deviation.

87. The system of Claim 85, wherein the variation from the expected quantity includes being one of greater than and less than the expected quantity.

88. The system of Claim 85, wherein the variation includes a sequence of intervals varying from the expected quantity.

89. The system of Claim 85, wherein the sequence of variations includes one of a longest series of intervals or a plurality of a number of longer series for which data associated with the intervals varies from the expected quantity.

90. The system of Claim 84, wherein the system further includes a representation determiner, the representation determiner being configured to:

determine a maximum number of points displayable within the frame;
determine a number of points representative of a data quantity associable with each interval such that a proportion of the number of points to the maximum number of points represents a relative magnitude of the first data quantity; and
contiguously display the number of points in the frame for each of the intervals.

91. The system of Claim 90, wherein the display apparatus is further configured to present a first number of data points in a first format including at least one of a color and a fill pattern.

92. The system of Claim 91, further comprising a format selector coupled with the display apparatus, the format selector allowing a user to select the first format.

93. The system of Claim 84, wherein:

the identifier is further configured to identify a second data characteristic to be identified for data the associable with the number of intervals in the period;
the data mining system is further configured to mine the body of data to identify a number of second significant intervals, the second significant intervals being intervals for which the second data characteristic is manifested in data associated with each of the second significant intervals; and
the display apparatus is configured to present in the frame associated with each of the second significant intervals a second representation of the data indicative of the second data characteristic.

94. The system of Claim 84, wherein the data indicative of the first data characteristic includes data representative of a plurality of data sources and the data representative of the plurality of data sources is presented using a unified representation format.